

Inventor: Ross  
Serial No.

**STATUTORY INVENTION REGISTRATION**  
Navy Case No. 76,736

5

**ABSTRACT OF THE INVENTION**

10 A digital preemphasizer that provides a means for high  
fidelity reconstruction, i.e. low, acceptable bit error-rate, of  
an original pulse code modulation (PCM) serial stream binary data  
signal which has suffered degradation of fidelity, and consequent  
increase in bit-error-rate, during transmission on a single  
channel from a transmitter to a receiver, connected to each other  
15 by a transmission line exhibiting both resistive and frequency  
dependent loss. This is accomplished prior to transmission by  
amplitude encoded digital pre-emphasis of each bit of the  
original binary data signal to be transmitted in such  
manner as to mitigate or remedy the signal degrading frequency  
20 dependent losses concomitant with the signal transfer network  
characteristics of the fixed transmission line. Subsequent to  
this pre-emphasis process, the amplitude encoded signal is  
transmitted to the receiver connected to the other end of the  
fixed transmission line. Compared to a conventional transmitter,  
25 transmission line, and receiver system, the end result of  
amplitude encoded pre-emphasis is superior reconstructed fidelity  
and quality of the PCM waveform, i.e. lower bit-error-rate, at  
the output of the receiver for the same length of transmission  
line or, alternatively, a longer transmission line for the same